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Why Prosocials Exhibit Greater Cooperation than Proselfs: The Roles of Social Responsibility and Reciprocity

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Abstract

Two studies examined the choice differences between prosocials and proselfs by examining the influence of norms of social responsibility and reciprocity. In line with the integrative model of social value orientation, it was expected that prosocials differ from proselfs in their level of cooperation because they wish to maximize own and other's outcomes (i.e. paralleling the norm of social responsibility) and enhance equality in outcomes (i.e. paralleling the norm of reciprocity). Study 1 revealed that prosocials felt more responsible to further the group's interest than proselfs did and this social responsibility feeling appeared to account for choice differences. Study 2 revealed that prosocials were more likely to reciprocate their partner's actions than were proselfs. Also, feelings of social responsibility did not account for this observation, suggesting that enhancing joint outcomes and equality in outcomes constitute two relatively independent dimensions. The findings are discussed in light of the integrative model of social value orientation. Copyright © 2001 John Wiley & Sons, Ltd.

INTRODUCTION

Many theories and models developed within the social and behavioural sciences depart from the assumption of self-interest. Although this assumption is especially prevalent within the disciplines of economics and political science, it also forms the point of departure of theories developed within the discipline of psychology. At the same time, within psychology there is increasing attention for a more multifaceted view of human nature, suggesting that interpersonal behaviour needs to be understood in terms of not

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only self-interested motivations, such as tendencies toward enhancing good outcomes for self, either in an absolute sense (individualism) or relative sense (competition), but also pro-social motivations, such as the tendency to enhance good outcomes for the collective (cooperation), and the tendency to enhance equality in outcomes (equality).

The present research addresses social value orientation, or preferences for particular patterns of distributions of outcomes for self and others (Messick and McClintock, 1968; Van Lange, Otten, De Bruin and Joireman, 1997). Research on this concept has revealed support for a three-category typology, including (1) pro-social orientation (i.e. enhancing joint outcomes and enhancing equality in outcomes), (2) individualistic orientation (i.e. enhancing outcomes for self with no or little regard to other's outcomes), and (3) competitive orientation (i.e. enhancing relative advantage over other's outcomes). The latter two are often combined and form one specific group referred to as proselfs (Van Lange and Liebrand, 1991).

Theoretically, it has been argued that social value orientations represent differences in transformational tendencies with respect to outcomes (see e.g. McClintock and Liebrand, 1988; Van Lange, 1999). That is, individuals are assumed to transform a so-called given matrix, the objective situation representing outcomes for self as a function of own and other's behaviour, into an effective matrix, the 'subjective' situation representing preferences for patterns of outcomes for self and other (Kelley and Thibaut, 1978). To illustrate: if an individual were merely interested in enhancing joint outcomes, he or she would transform the given matrix into a matrix summarizing the collective outcomes (i.e. summed outcomes for self and other) as a function of own and other's behaviour. According to this transformation analysis, the effective matrix preferences are assumed to be more strongly predictive of cognition, affect, and behaviour in social dilemmas than are given matrix preferences (Kelley, 2000).

Relevant to the transformational analysis, there is evidence indicating that, relative to proselfs, prosocials exhibit greater levels of cooperation in a variety of social dilemmas, seek out greater opportunities to enhance collective outcomes and equality in outcomes, and tend to give social dilemmas a stronger 'cooperative' (rather than competitive) meaning. As we will review shortly, past research has contributed much to our understanding of the circumstances under which prosocials and proselfs differ in their approach and reactions to others in social dilemmas. However, it is only recently that research has addressed the motivational mechanisms underlying differences in the behaviour typically observed for prosocials versus proselfs. Put succinctly: why do prosocials exhibit greater cooperation than do proselfs?

The major purpose of the present research is to examine implications of the transformational analysis of social value orientation. Following the integrative model of social value orientation (Van Lange, 1999), we assume that prosocials differ in two respects from proselfs: the weight assigned to outcomes for other, and the weight assigned to equality in outcomes. Using this integrative model as a starting point, we suggest that prosocials' and proselfs' different behavioural reactions should be linked to (a) social responsibility, which refers to a concern for self and other (see e.g. Fiske, Kitayama, Markus and Nisbett, 1998), and (b) reciprocity, which under certain circumstances is compatible with a concern with equality in outcomes. We will present two studies, one designed to provide preliminary evidence for a link between social value orientation and social responsibility (Study 1), and one designed to examine the links between social value orientation, social responsibility, and reciprocity (Study 2).

How to account for differences between prosocials and proselfs in social dilemmas

Many interactions within society and groups take the form of a social dilemma. For example, the existence of several public goods or services (e.g. community centres, charity) depends on the willingness of people to contribute time, effort, or money to enhance the well-being of the group or larger collective. From a self-interested perspective, it is rational to enhance personal well-being by contributing nothing or very little of one's own resources to the public good. However, if all group members act in an individually rational manner, public goods or services will not be provided. Indeed, if all or most group members were to act in a collectively rational manner (i.e. all or most would make substantial contributions), all individuals would profit from the public good or services made possible by these contributions.

Extant evidence indicates that individuals with prosocial orientations tend to act and think in a collectively rational manner, whereas individuals with proself orientation tend to act and think in an individually rational manner. As alluded to earlier, numerous studies indicate that, relative to proselfs, prosocials approach others more cooperatively, exercise more personal restraint in so-called resource dilemmas, and respond more cooperatively to a variety of strategies (see e.g. Kramer, McClintock and Messick, 1986; Liebrand and Van Run, 1985; McClintock and Liebrand, 1988). Such patterns have been consistently observed in several different social dilemmas such as give-some and take-some games (see Van Lange, 2000). There is also evidence to suggest that prosocials and proselfs construe social dilemmas differently. For example, there are fairly strong links between interpersonal orientation and beliefs regarding other's interpersonal orientation (Kuhlman and Wimberley, 1976), as well as the level of confidence they have in such beliefs (Van Lange, 1992), and judgments of other's cooperative and noncooperative behaviour, in terms of might (strength versus weakness) and morality (goodness versus badness; cf. the might versus morality effect, Liebrand, Jansen, Rijken and Suhre, 1986; McClintock and Liebrand, 1988), as well as rationality and intelligence (the goal-prescribes-rationality principle; Van Lange and Liebrand, 1991). For example, prosocials tend to construe social dilemmas more strongly as a moral issue, whereas proselfs also tend to construe these situations in terms of power. Also, prosocials associate cooperation with intelligence, whereas proselfs associate cooperation with unintelligence. Indeed, prosocials expect greater cooperation from intelligent others than from unintelligent others, whereas proselfs expect relatively greater cooperation from unintelligent others (Van Lange and Liebrand, 1991). The latter finding supports the principle that prosocials frame social dilemmas in terms of collective rationality, whereas proselfs frame social dilemmas in terms of individual rationality (e.g., goal-prescribes-rationality principle, Van Lange and Kuhlman, 1994). Such evidence indicates both cognitive and behavioural differences between prosocials and proselfs, providing evidence that is congruent with the broader notion that differences between prosocials and proselfs represent different outcome transformations. However, in order to understand such cognitive and behavioural differences, an important question emerges: which model of outcome transformations best characterizes differences between prosocials and proselfs? To answer this adequately, we need to focus more closely on the different goals prosocials and proselfs pursue in interdependent situations.

Traditionally, theorists and researchers have focused on a two-dimensional model, describing social value orientations in terms of (a) the weight assigned to outcomes for self, and (b) the weight assigned to outcomes for other (McClintock, 1972). A potential

limitation of this model is that egalitarianism, the tendency to minimize or reduce absolute differences in outcomes for self and other, is not represented in this model.

Recently, Van Lange (1999) has advanced an integrative model of outcome transformation, describing social value orientation in terms of the weights assigned to outcomes for self, outcomes for other, and equality in outcomes (see also Van Lange, 2000). This integrative model acknowledges the idea that equality and fairness represent important criteria with which individuals tend to evaluate the 'goodness' of outcomes for self and others in settings of interdependence. Indeed, there is a fair amount of support for the notion that people's evaluations of outcomes are influenced by considerations of fairness, as supported by research on social decision making (see e.g. Loewenstein, Thompson and Bazerman, 1989; Messick and Sentis, 1985), social dilemmas (Van Dijk and Wilke, 1993), and social value orientation (see e.g. Gärling, 1999; Knight and Chao, 1991).

According to the integrative model, prosocial orientation is reflected by assigning positive weight to (a) outcomes for self, (b) outcomes for other, and (c) equality in outcomes. In contrast, proself orientation is either reflected by merely assigning positive weight to outcomes (individualism) or assigning a positive weight to outcomes for self and a negative weight to outcomes for other (competition). Hence, relative to proselfs, prosocials should assign a greater weight to outcomes for other and equality in outcomes. This model has received some support in previous research. First, classic research by Kelley and Stahelski (1970) provides evidence in support of behavioural assimilation, the tendency for prosocials to behave noncooperatively when the partner fails to behave cooperatively. The phenomenon of behavioural assimilation can be accounted for by the integrative model but not by the classic, two-dimensional model of social value orientation (for a precise analysis, see Van Lange, 1999). Second, relative to individualists and competitors, prosocials use and recall decision making heuristics that focus on enhancement of own-and-other's outcomes (e.g. 'take a problem-solving approach') and enhancement of equality of outcomes (e.g. 'play fair' or 'share and share alike'; De Dreu and Boles, 1998). Third, prosocials, relative to proselfs, exhibit a greater preference to alter the interdependence structure, by for example introducing a leader, when outcomes are distributed unfairly (De Cremer, 2000), and there is a positive association between tendencies toward enhancing own-and-other's outcomes and tendencies toward minimizing absolute differences in outcomes for self and others. This has been observed using an instrument in which these two tendencies are assessed in a completely orthogonal manner, hence indicating that people 'create' that positive association (Van Lange, 1999). That is, the majority of participants hold either orientations or neither orientation, and a minority holds one of the two orientations. This evidence suggests that concern with others and egalitarianism tends to go hand in hand, at least for most people.

An important implication of the integrative model, and the above lines of reasoning, is that prosocials differ from proselfs in terms of the weight assigned to outcomes for other and the weight assigned to equality in outcomes. These motivational tendencies seem to have clear and intuitively compelling links with orientations that have received a fair amount of attention in prior theorizing and research, that is, *social responsibility* and *reciprocity*. Work by Berkowitz and Daniels (1963, 1964) defined social responsibility as guided by people's concerns for those who suffer or are in need. In addition, social responsibility in interdependent relationships also reflects people's tendency to be concerned about both self and other; a morally defined motive (see e.g. Fiske *et al.*, 1998). Particularly the latter conception is closely linked to consideration for other's outcomes as defined in the integrative model. Therefore, in the present contribution, we use social

responsibility as reflecting people's concern for both self and other's interests (motivated by the moral consideration of how one ought to act, cf. Cialdini *et al.*, 1991).

The norm of reciprocity is usually defined as people's tendency to reward or punish their interaction partner(s) according to what they deserve (see e.g. Gouldner, 1960). Applying this to the integrative model, under certain circumstances, reciprocity and the tendency to restore equality in outcomes may reveal similar behavioural outcomes. Indeed, having an interaction partner who violates an equality-rule may indicate that he or she will receive more than he or she deserves, consequently promoting behavioural assimilation strategies (i.e. paralleling reciprocity at that moment). Moreover, previous research has demonstrated that normative considerations like social responsibility and reciprocity promotes cooperation in interdependence situations (e.g. Fleishman, 1988; Ostrom, 1998). Thus, taken together, a prosocial orientation, relative to a proself orientation, may be more strongly linked to social responsibility and reciprocity. However, we wish to clearly emphasize that we do not argue that both norms of social responsibility and reciprocity constitute actual components of a prosocial orientation.

Finally, the current approach also allows us to narrow the gap between the literatures on social responsibility and reciprocity. Although these two considerations are central to, for example, understanding the dimension of collectivism versus individualism, often referred to as benevolence (i.e. concern with other's outcomes) and universalism (Schwarz, 1992), and figure prominently in dimensions underlying morality, which are often referred to as a 'morality of caring' and a 'morality of justice' (Fiske *et al.*, 1998), both have always been discussed and examined separately (particularly with respect to social value orientation, Van Lange, 2000).

Hypotheses and research overview

Two studies were conducted to provide evidence relevant to the general hypothesis, following from the integrative model, arguing that, relative to proselfs, prosocials exhibit greater levels of social responsibility and tendencies toward reciprocity in social dilemmas. Our principal hypotheses can be summarized as follows. First, in line with much previous research, it is expected that, relative to proselfs, prosocials will exhibit greater cooperation in a social dilemma (*hypothesis 1*). Second, it is predicted that prosocials will experience stronger feelings of social responsibility than proselfs (*hypothesis 2*). Third, it is predicted that feelings of social responsibility are positively associated with cooperative behaviour in a social dilemma (*hypothesis 3*). Finally, complementing recent research on the integrative model (Van Lange, 1999), it is expected that, relative to proselfs, prosocials respond more strongly to variations in other's behaviour in such a manner as to enhance equality in outcomes (i.e. greater levels of reciprocity; *hypothesis 4*). Whereas Study 2 was designed to test all four hypotheses, Study 1 was a preliminary Study designed to test hypotheses 1, 2, and 3.

STUDY 1

Method

Participants and design

Participants were 63 undergraduate students (average age 18.5 years). The independent variable in this study was participant's social value orientation (prosocial versus proself).

Procedure

The study was part of a class-room exercise. Participants were divided in groups of four and were required to play a public goods dilemma.

Assessment of social value orientation

As a first task, they anonymously completed a written version of the nine-item Decomposed Games measure to assess their social value orientation (Messick and McClintock, 1968; Van Lange and Kuhlman, 1994). The Decomposed Games instrument has excellent psychometric qualities. It is internally consistent (see e.g. Liebrand and van Run, 1985; Parks, 1994), reliable over substantial time periods (Eisenberger *et al.*, 1992), and is not related to measures of social desirability or indices of mood (see e.g. Kuhlman, Camac and Cunha, 1986; Platow, 1992). Moreover, there is evidence for its ecological validity in various domains (see e.g. Van Lange, Van Vugt, Meertens and Ruiter, 1998).

The task consists of nine items, each containing three alternative outcome distributions with points for oneself and an (anonymous) other. Each outcome distribution represents a particular orientation. An example is the choice between alternative A: 500 points for self and 500 points for other; B: 560 points for self and 300 for other; and C: 500 points for self and 100 for other. Option A represents the *cooperative* or *pro-social* orientation, because it provides an equal distribution of outcomes (i.e. 500 for self and other). Option B represents the *individualistic* option because own outcomes are maximized (560 versus choice A and C, i.e. both 500) irrelative of other's outcomes. Finally, option C represents the *competitive* orientation because this distribution maximizes the difference between own outcome and other's outcomes (choice C, $500 - 100 = 400$, versus A, $500 - 500 = 0$, and B, $560 - 300 = 260$).

Participants are classified as prosocial, individualistic, or competitive when at least six choices (out of nine) are consistent with one of the three orientations (see e.g. Van Lange and Kuhlman, 1994). In the present study, out of a total number of 68 individuals, 39 (57%) were identified as prosocials, 17 (25%) as individualists, and seven (10%) as competitors. On the basis of the above criterion, five (7%) individuals could not be classified and were therefore excluded from further analyses. The individualists and competitors were combined to form one group of proself people ($N = 24$).

The public good dilemma

After participants finished the decomposed games they were told that many real-life situations take the form of a social dilemma. To illustrate this the experimenter provided them with a real-life example (i.e. about a team project). After this, they received 30 points as endowment at the start of the session. They were told that they were free to contribute any amount they wished in order to establish the common good. It was explained that the total amount contributed by the group would be multiplied by two and split equally among all members, regardless of their contribution. To enhance the understanding of this situation, some outcome possibilities were explained to the participants (e.g. the issue of free-riding). Thus, this decision situation has the properties of a social dilemma as non-contribution is the most attractive option (i.e. whether or not participants contribute, they still receive part of the bonus), but if all do so, the final outcome will be lower than if all decide to contribute.

Dependent measures.

After explaining the dilemma structure, feeling of social responsibility was assessed by asking participants to what extent they felt it was their responsibility to further the

collective interest (seven-point scale ranging from not at all (1) to very much so (7). After this, participants were asked how many points they were willing to contribute. Finally, they were thanked and debriefed.

Results¹

A one-way ANOVA revealed a significant effect for social value orientation, $F(1, 61) = 35.74$, $p < 0.001$, showing that prosocials contributed more than did proselfs ($M = 13.25$ versus 8.70 , $SD = 3.43$ and 1.82 , respectively).

A one-way ANOVA on the social responsibility score also revealed a significant effect for social value orientation, $F(1, 61) = 19.11$, $p < 0.001$. Prosocials felt more responsible than did proselfs ($M = 4.51$ versus 3.62 , $SD = 0.75$ and 0.82 , respectively). To examine whether the effect of social value orientation would remain after correcting for feelings of social responsibility, an ANCOVA was conducted with the social responsibility score as a covariate. First, a significant effect for feelings of social responsibility was found ($\beta = 0.38$), $F(1, 60) = 12.56$, $p = 0.001$. Second, the results revealed that the effect of social value orientation remained significant, although the effect size decreased considerably, $F(1, 60) = 15.67$, $p < 0.001$ (i.e. a decrease of 20 in F -value). Prosocials contributed more than proselfs (adjusted means = 12.72 versus 9.56 , respectively). Thus, the findings provide preliminary evidence that social responsibility represents a motivational process underlying behavioural differences between prosocials and proselfs.

STUDY 2

The results of the first study reveal that prosocials exhibit greater cooperation than proselfs. In line with the assumption that proselfs direct their focus to both own and other outcomes (Van Lange, 1999), it was shown that prosocials experienced stronger feelings of social responsibility than proselfs did and this normative belief appeared to account, at least partly, for the effect of social value orientation on contributions.

Study 2 was designed to provide further evidence that social responsibility (as a means to care for both self and other) may provide part of the explanation why prosocials and proselfs differ in their level of cooperation. To achieve this purpose, we decided to use a different measure of social responsibility than the single item used in Study 1. Rather, in Study 2, we administered an existing and valid eight-item social responsibility scale by Berkowitz and Lutterman (1968).

Furthermore, the integrative model of social value orientation (Van Lange, 1999), suggests the hypothesis that prosocials assign more importance to equality in outcomes than proselfs do. Thus, prosocials' tendency to take into account broader issues than one's own self-interest does not only constitute a concern for other's outcomes but also a concern for equality in outcomes. Therefore, in Study 2, it will also be examined whether prosocials respond to other's behavioural pattern in a more reciprocal manner than proselfs do (i.e. exhibit more behavioural assimilation, Kelley and Stahelski, 1970). As such, Study 2 tested all hypotheses that we advanced earlier (i.e. hypotheses 1–4).

¹ We also classified participants as high or low in social responsibility by using a median split. This analysis, using a 2 (social responsibility) $\times 2$ (social value orientation) between-subjects design, did not reveal any evidence for a moderating effect of social responsibility. Therefore, it is statistically sound to test for mediation as reported in our result section. With respect to this mediational analysis, it has to be noted that our model, as outlined in the introduction, is focused explicitly on testing for mediating rather than moderating effects.

Method

Participants and design

Fifty-five undergraduate students participated voluntarily in the present study. The study made use of a 2 (social value orientation: prosocial versus proself) \times 2 (partner's cooperation: high versus low) between-participants factorial design.

Procedure

The study was conducted during a small group meeting in which undergraduate students were asked to fill out a questionnaire regarding decision making. All students agreed.

Assessment of social value orientation

As in the first study participants anonymously completed a written version of the nine-item Decomposed Games measure to assess their social value orientation (Messick and McClintock, 1968; Van Lange and Kuhlman, 1994). In the present study, out of a total number of 52 individuals, 32 (58%) were identified as prosocials, 12 (22%) as individualists, and seven (13%) as competitors. On the basis of the above criterion, four (7%) individuals could not be classified and were therefore excluded from further analyses. The individualists and competitors were combined to form one group of proself people ($N = 19$).

After participants finished the decomposed games, they were asked to fill out an eight-item social responsibility scale taken from Berkowitz and Lutterman (1968). The scale includes items such as 'Every person should give some of his/her time for the good of his/her town or country' and 'It is the duty of each person to do his/her job the very best he/she can'. The items were answered on a seven-point scale (ranging from strongly disagree (1) to strongly agree (7)). Cronbach's coefficient revealed good internal consistency ($\alpha = 0.74$).

The give-some dilemma

After answering both measures, participants were required to make a decision in a modified public goods dilemma, which was adopted from previous research (see Van Lange, 1999; Van Lange and Kuhlman, 1994). The task was presented in such a way that participants could make a choice between five options, varying systematically from most to least cooperative. Participants were told that they were paired with another person participating in the same study. They were informed that they were given four blue chips and that the partner with whom they would play the task (and who was unknown to them) was given four yellow chips. Each chip the participant kept for him- or herself was worth 25 units, whereas a chip given to the partner was worth 50 units. The same logic applied for the partner; each chip the partner kept was worth 25 units, whereas each chip the partner gave to the participant was worth 50 units. After this, participants were told that their partner decided to give away either one chip (i.e. *low cooperation condition*) or three chips (i.e. *high cooperation condition*). When this information was provided, participants were required to decide how many chips they were willing to give to their partner. Four chips given to the partner indicates maximal cooperation, and zero chips given means minimal cooperation.

Thus, each participant had five choices and the outcome is determined by the combined choices of both the participant and their partner. This information was given to the participants in the form of a 5×5 payoff matrix. Finally, participants were debriefed and thanked for their participation.

Table 1. Given chips as a function of social value orientation and partner's cooperation

Partner's cooperation	Social value orientation	
	Prosocial	Proself
Low cooperation	1.00 (0.50)	1.10 (0.73)
High cooperation	2.20 (0.86)	0.89 (0.78)

Note: Entries in bold are the average number of chips given, which could range from 0 to 4 chips, with higher values indicating a higher number of chips; entries within parentheses are standard deviations.

Results²

A 2 (social value orientation: prosocials versus proselfs) \times 2 (partner's cooperation: low versus high) ANOVA was conducted on the contribution score revealing, first of all, a significant main effect for social value orientation, $F(1, 47) = 8.46$, $p < 0.01$. Prosocials were found to contribute more than proselfs ($M = 1.60$ versus 0.99 , $SD = 0.91$ and 0.74 ; respectively). Second, a significant main effect for partner's cooperation was found, $F(1, 47) = 5.64$, $p < 0.05$, showing that high cooperative partners elicited more cooperation than low cooperative partners ($M = 1.54$ versus 1.05 ; $SD = 0.82$ and 0.55 ; respectively). Finally, a significant interaction between social value orientation and partner's cooperation emerged, $F(1, 47) = 11.49$, $p = 0.001$ (see Table 1).

Calculation of simple main effects revealed that prosocials' contributions varied as a function of partner's cooperation, $F(1, 49) = 19.72$, $p < 0.001$. In the case of a low cooperative partner contributions were exactly similar, whereas in case of a high cooperative partner contributions were somewhat lower. Proselfs' contributions did not vary as a function of partner's cooperation, $F(1, 49) < 1$. Furthermore, when partners' cooperation was low no significant difference was found between prosocials and proselfs, $F(1, 49) < 1$. However, when partners' cooperation was high, prosocials contributed significantly more than proselfs, $F(1, 49) = 21.87$, $p < 0.001$.

A 2×2 ANOVA on the average social responsibility score revealed a significant main effect of social value orientation, $F(1, 47) = 53.04$, $p < 0.001$. Prosocials felt more socially responsible than proselfs ($M = 4.21$ versus 3.14 , $SD = 0.46$ and 0.60 ; respectively). No significant main effect for partner's cooperation was found, $F(1, 47) < 1$, and only a marginally significant interaction effect between social value orientation and partner's cooperation, $F(1, 47) = 2.92$, $p < 0.10$. Again, to examine whether the effect of social value orientation remains significant after correcting for feelings of social responsibility an ANCOVA was conducted with the average social responsibility score as covariate. First, a significant effect for the covariate was found ($\beta = 0.77$), $F(1, 46) = 23.73$, $p < 0.001$. Second, results revealed that the significant effect of social value orientation was eliminated, $F(1, 46) = 1.25$, $p < 0.27$ (i.e. original analysis $F(1, 47) = 8.46$, $p < 0.01$). Furthermore, the ANCOVA made both the effect of partners' cooperation, $F(1, 46) = 5.52$, $p < 0.05$, and the interaction between social value orientation and partners' cooperation significant, $F(1, 46) = 7.99$, $p < 0.01$. Thus, the findings of Study 2 demonstrate that the effect of social value orientation on contributions was accounted for, at least partly, by feelings of social responsibility and that prosocials, relative to proselfs, engaged in behavioural assimilation. However, feelings of social responsibility were not found to account for this behavioural assimilation effect.

²As in Study 1, participants were classified as high or low in social responsibility by using a median split. Again, a $2 \times 2 \times 2$ ANOVA did not reveal a moderating effect for social responsibility.

GENERAL DISCUSSION

The present research used the social dilemma paradigm to examine two psychological dimensions that may explain differences between prosocials and proselves in their choice of behaviour, that is, social responsibility (paralleling a concern with outcomes for other) and reciprocity (paralleling a concern with equality in outcomes). Based on these differences, it was expected that prosocials would experience stronger feelings of social responsibility and would engage more in behavioural assimilation than proselves did, consequently influencing contribution levels. The present findings supported our predictions. In the following paragraphs, implications of the present research will be discussed.

The most important finding of the present research is that the results are in line with an integrative model of social value orientation (SVO; Van Lange, 1999). This model conceptualizes outcome transformation in terms of the importance assigned to outcomes for self, outcomes for others, and equality in outcomes. In what way are the results compatible with this model? First, prosocials were found to experience stronger feelings of social responsibility than proselves, consequently influencing their tendency to exhibit greater cooperation. As argued in the introduction, we consider social responsibility as a social norm that describes how one ought to act in interdependence situations such as social dilemmas (see also Fiske *et al.*, 1998; morality of caring). This responsibility feeling is most likely to be activated when decision-makers interpret their decisions in terms of the consequences of their behaviour for others (see e.g. Schwartz, 1977) and not only when others are perceived to be in need (Berkowitz and Daniels, 1963, 1964). This definition is closely related to prosocials' tendency to focus on both own and other's outcomes, that is, prosocials take into account the impact of the consequences of their choices on others. As such, they are by definition more sensitive to social norms like social responsibility and consequently will experience such feelings more strongly than proselves. In addition, previous research demonstrated that a subjective feeling of social responsibility is an important precursor to pro-socials' acts across a variety of situations (see e.g. Fleishman, 1988). In line with this, the present results, indeed, showed that social responsibility was positively related to contributions and accounted, at least partly, for the behavioural differences between prosocials and proselves. Thus, using feelings of social responsibility as a means for caring for both self and other, we provide some evidence that an important goal of prosocials is to take into account other's interests as well when making decisions in social dilemmas.

Second, the results of Study 2 demonstrated that prosocials, relative to proselves, expressed a strong desire to restore equality in outcomes as they engaged more in behavioural assimilation (see e.g. Kelley and Stahelski, 1970). This finding is consistent with the integrative model because it shows that the motivation to enhance equality in outcomes constitutes another orientation that explains differences in contributions between prosocials and proselves. In the context of the present social dilemma games, behavioural assimilation thus revealed a similar behavioural outcome to the one predicted by the principle of reciprocity. As such, to a certain extent one can argue that a link between reciprocity and a prosocial orientation exists (although it has to be noted that reciprocity includes more than only equality; Gouldner, 1960).

Moreover, the fact that feelings of social responsibility did not account for the occurrence of this behavioural assimilation tendency (i.e. the interaction in Study 2 remained) provides direct support for the integrative model by arguing that enhancement

of joint outcomes and enhancement of equality in outcomes represents two *different* and *independent* orientations or goals. Thus, Van Lange's (1999) integrative model seems to capture the complex interaction objectives of prosocials and proselfs in a better and more accurate manner than the traditionally two-dimensional model of SVO that does not conceptualize tendencies toward equality in outcomes as an important concern (see e.g. Griesinger and Livingston, 1973). Taken together, the present research provides additional evidence that, relative to proselfs, prosocials seem to simultaneously pursue the following goals in interdependence situations: (1) maximize own outcomes, (2) maximize joint outcomes, and (3) achieving equality in outcomes.

Before closing, some strengths, limitations, and recommendations for future research need to be mentioned. A potential weakness is that in both studies SVO and social responsibility was assessed just before the choice task, which may have induced demand characteristics. Although this may have influenced participants' decisions, previous research on the SVO scale has demonstrated that even when social motives are assessed well in advance of behavioural measures and tasks (e.g. 4–6 weeks), they still affect behaviour in the predicted ways (see e.g. McClintock and Allison, 1989). However, since there is always a possibility of earlier measures sensitizing participants to later measures, it would be interesting to replicate the present studies by measuring both scales a substantial amount of time before the actual task and to include a number of filler items. A related weakness is that because social responsibility was assessed before contributions, we may have increased the salience of our potential mediator, thereby increasing the probability that social responsibility mediated the effect of social value orientation (i.e. this may have focused participants on reasons to contribute). Indeed, making social responsibility very salient reduced the opportunity to trigger other alternative motives influencing contributions.

Another potential limitation is that the integrative model was tested in Study 2 by using a specific paradigm, that is a two-person give-some game (e.g. Van Lange and Kuhlman, 1994), as such leaving open the question of whether or not the present results can be generalized to other social dilemma types. Therefore, a suggestion for future research may be to use different dilemma types to examine the validity of this model across a variety of interdependence situations. For example, with respect to the issue of social responsibility it would be interesting to test whether similar results would be found in both resource and public good dilemmas. Recently, Van Dijk and Wilke (1997) argued that in public good dilemmas social responsibility is likely to be more easily activated than in resource dilemmas, particularly when the dilemma is partitioned. Applying this to our present findings may suggest that choice differences between prosocials and proselfs may be more salient in public good dilemmas than in resource dilemmas, an assumption which is interesting as it is contrary to previous suggestions about the usefulness of SVO as a predictor of cooperation (see Parks, 1994).

On a practical level, testing the dimensions of social responsibility and reciprocity outside the laboratory would probably reveal a greater insight into the differences between prosocials and proselfs. Previous research has provided some evidence that SVO is, indeed, a significant predictor outside the laboratory for example to predict one's use of public versus private transport (Van Vugt, Meertens and Van Lange, 1995). Accordingly, it would be interesting to see, for example, to what extent social responsibility accounts for prosocials' tendency to focus on both own and other's outcomes in large-scale social dilemmas. Feelings of social responsibility have a moral connotation and therefore it seems a useful measure to examine SVO in large-scale dilemmas because such a social

norm is particularly relevant at the level of society as it communicates what a good citizen ought to do (Biel, Von Borgstede and Dahlstrand, 1999).

An important strength of our research is that we have focused specifically on the social psychological mechanisms that differentiate between prosocials and proselfs in their choice of behaviour in social dilemmas. This is especially important, because the dimensions of social responsibility and reciprocity have received relatively little attention in research on social value orientation (Van Lange, 2000). This is surprising because both dimensions have been found to be important norms in the functioning of groups and societies. Indeed, as Ostrom (1998) argues, 'Reciprocity is a basic norm taught in all societies' (p. 10). Furthermore, social responsibility seems to be an important precursor of helping behaviour and may elevate levels of generosity (see e.g. Van Lange, 2000). Moreover, using these two considerations also seems helpful in understanding value types such as benevolence (i.e. concern with others) and universalism (concern with fairness, see Gärting, 1999, Schwartz, 1992).

A final suggestion for future research would be to examine specific situations in which social responsibility is likely to be of importance. Based on the work of Berkowitz (Berkowitz and Daniels, 1963, 1964; Berkowitz, 1972), this may particularly be the case when one perceives the need or suffering of another. One such situation may be when one feels empathy for another person (Batson, 1991). Feeling empathy motivates people to be other oriented associated with behaviour aimed at promoting the welfare of another individual. Under such circumstances, it seems likely that feelings of social responsibility will be activated more easily. Although this may be beneficial for promoting cooperation in two-person games, it has been demonstrated that caring for one of the other group members in an $n > 2$ -person social dilemma may have rather detrimental effects for the group's welfare (see Batson, Batson, Todd, Brummett, Shaw and Aldeguer, 1995). Thus, conditions under which feelings of social responsibility are aroused may not always promote cooperation at all levels (i.e. individual, dyad, or collective).

To conclude, it seems to be the case that the primary reason why prosocials exhibit greater cooperation than proselfs is that the former care for both own and other's outcomes (i.e. paralleling the norm of social responsibility) and wish to enhance equality in outcomes (i.e. paralleling the norm of reciprocity). In this respect, the present study underlines the importance of specifying different norms and orientations that may further our understanding of the well known relationship between SVO and behavioural choices in social dilemmas.

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